

CLAIMS

1. A control and power module (100) for a polyphase alternator-starter for a motor vehicle, connected to the phases of the alternator-starter (3), to the on-board network (Ua), and to a ground line (GND) of the vehicle,
5 comprising:
 - a power unit (1) including a transistor bridge having a plurality of branches (B1 - B3), and
 - a control unit (50),
 characterised in that the transistors in common on a branch of the bridge
10 are governed by a driver (10, 20, 30) which is located close to these transistors and controlled by a management circuit (2), and in that the management circuit and the drivers are part of the control unit (50).
2. A control and power module according to Claim 1, characterised in that the drivers (10, 20, 30) and the power unit (1) constitute a first stage of the
15 module, the management circuit (2) constituting a second stage of the module.
3. A control and power module according to Claim 1, characterised in that it is integrated in the rear of the alternator-starter.
4. A control and power module according to Claim 1, characterised in that
20 the management circuit (2) is spaced away from the drivers.
5. A control and power module according to Claim 2, characterised in that the first stage is integrated in the alternator-starter, and the second stage is located in a housing outside the alternator-starter.
6. A control and power module according to Claim 1, characterised in that
25 each branch of the transistor bridge and the driver which governs it are connected close to one of the phase outputs of the alternator-starter.
7. A control and power module according to Claim 1, characterised in that it is adapted to be connected to a three-phase alternator-starter, each phase of which is connected to one of the branches (B1, B2, B3) of the
30 power unit, and in that the three branches are identical.
8. A control and power module according to Claim 1, characterised in that control signals from the management circuit (2) are common to all the drivers.
9. A control and power module according to Claim 1, characterised in that
35 each transistor is a set of transistors connected in parallel.

10. A control and power module according to Claim 1, characterised in that each driver (10, 20, 30) is controlled by the same management circuit (2).
- 5 11. A control and power module according to Claim 1, characterised in that each of the drivers (10, 20, 30) controls the power transistors (11, 12, 21, 22, 31, 32) of a common branch (B1, B2, B3).
- 10 12. A control and power module according to Claim 11, characterised in that each branch of the bridge comprises at least two power transistors, each of which has a grid, and in that the drivers (10, 20, 30) are connected at the output to the grids of the two power transistors, (11, 12; 21, 22; 31, 32) of one common branch.
13. A control and power module according to Claim 11, characterised in that the power transistors (11, 12, 21, 22, 31, 32) are located on metallic tracks (104).
- 15 14. A control and power module according to Claim 13, characterised in that the metallic tracks (104) of a power sub-module (200) constitute a set of tracks spaced apart from each other.
- 20 15. A control and power module according to Claim 13 or Claim 14, characterised in that the power transistors (11a, 11b) which are in the same one of the bridge arms are placed symmetrically with respect to the phase input (ψ_1 , ψ_2 , ψ_3) in order to give balanced current distribution.
- 25 16. A control and power module according to Claim 13 or Claim 14, characterised in that the low side power transistors (11a, 11b), and the high side transistors (12a, 12b) which are part of the same one of the bridge arms, are mounted essentially at right angles to each other so as to obtain balanced current distribution.